

**ANNUAL PROGRESS REPORT
TUBERCULOSIS IN UTAH
FIVE YEAR STATISTICAL REVIEW 2000-2004**

Total Cases

Thirty-six active cases of tuberculosis (TB) were reported in Utah in 2004, an 8% decrease from the 39 cases reported in 2003. There were 31 cases reported in 2002, 35 in 2001, and 49 in 2000.

Comment: The state has had an average of 38 cases of active TB reported each year between 2000 and 2004 (range: 31- 49).

Case Rates

The 2004 TB case rate was 1.5 per 100,000 persons, a decrease from 1.7 per 100,000 persons in 2003. The case rate was 1.3 per 100,000 persons in 2002, 1.6 per 100,000 persons in 2001, and 2.3 per 100,000 persons in 2000. (The case rates were calculated using population estimates from the Utah Department of Health's Indicator Based Information System).

Comment: The state of Utah has had an average of 1.7 cases of tuberculosis per 100,000 persons between 2000 and 2004 (range: 1.3 - 2.3 cases per 100,000 persons). Utah's case rate is lower than the most recently reported tuberculosis case rate for the entire US of 5.1 cases per 100,000 persons in 2003 (CDC. *Reported Tuberculosis in the United States, 2003*).

Site of Disease

In 2004, the percentage of TB cases with pulmonary disease alone was 64% (23 of 36 cases). An additional 3% (1 of 36) had pulmonary and extrapulmonary involvement; therefore, 67% (24 of 36) of the TB cases had some pulmonary involvement. The remaining 33% (12 of 36 cases) of the cases had only extrapulmonary disease. The percentages of TB cases with pulmonary disease alone were 72% (28 of 39 cases) in 2003, 55% (17 of 31 cases) in 2002, 66% (23 of 35 cases) in 2001, and 63% (31 of 49) in 2000. The percentages of cases having both pulmonary and extrapulmonary involvement were 5% (2 of 39 cases) in 2003, 13% (4 of 31) in 2002, 14% (5 of 35) in 2001, and 12% (6 of 49) in 2000; therefore, 77% (30 of 39 cases) in 2003, 68% (21 of 31) in 2002, 80% (28 of 35) in 2001, and 75% (37 of 49) in 2000 had some pulmonary involvement. The remaining 23% (9 of 39 cases) in 2003, 32% (10 of 31) in 2002, 20% (7 of 35) in 2001, and 25% (12 of 49) in 2000 had only extrapulmonary disease.

Comment: Between 2000 and 2004, pulmonary cases accounted for an average of 64% of Utah's TB cases each year (range: 55% - 72%); cases with both pulmonary and extrapulmonary involvement accounted for an average of 9% of the cases each year (range: 3% to 14%); and extrapulmonary only cases accounted for an average of 27% of the cases each year (range: 20% - 33%). In 2003, 71% of the tuberculosis cases in the entire US were pulmonary, 9% had both pulmonary and extrapulmonary disease, and 20% were extrapulmonary (CDC. *Reported Tuberculosis in the United States, 2003*).

Gender

During 2004, 56% (20 of 36) of persons with TB in Utah were male and 44% (16 of 36) were female. In 2003, 59% (23 of 39) of persons with TB were male and 41% (16 of 39) were female. In 2002, 55% (17 of 31) of persons with TB were male and 45% (14 of 31) were female. In 2001, 69% (24 of 35) of persons with TB were male and 31% (11 of 35) were female. In 2000, 69% (34 of 49) of persons with TB were male and 31% (15 of 49) were female.

Comment: Over the past five years, males have accounted for an average of 62% of the state's TB cases each

year while females have accounted for 38%. This is similar to the distribution of TB cases by gender for the entire US in 2003 when 61% of the reported cases occurred in males and 39% occurred in females (CDC. *Reported Tuberculosis in the United States, 2003*).

Age

In 2004, 8% (3 of 36) of persons with TB in Utah were children 0-14 years of age. This is a decrease from 2003 when 18% (7 of 39) of persons with TB were children 0-14 years of age. In 2002, 6% (2 of 31) of persons with TB were children 0-14 years of age. In 2001, 9% (3 of 35) of persons with TB were children 0-14 years of age, and in 2000, 2% (1 of 49) of persons with TB were in this age group.

In 2004, 75% (27 of 36) of persons with TB in Utah were between 15-64 years of age. This is an increase from 2003 when 62% (24 of 39) of persons with TB were between 15-64 years of age. In 2002, 81% (25 of 31) of persons with TB were between 15-64 years of age. In 2001, 74% (26 of 35) of persons with TB were between 15-64 years of age, and in 2000, 82% (40 of 49) of persons with TB were in this age group.

In 2004, 17% (6 of 36) of persons with TB in Utah were 65 years of age or older. This is a decrease from 2003 when 20% (8 of 39) of persons with TB in Utah were 65 years of age or older. In 2002, 13% (4 of 31) of persons with TB were 65 years of age or older. In 2001, 17% (6 of 35) of persons with TB were 65 years of age or older, and in 2000, 16% (8 of 49) of persons with TB were in this age group.

Comment: The percentage of Utah's TB cases in persons 0-14 years of age for the five-year period of 2000-2004 ranged from 2% to 18%, with a five-year average of 9%. The Utah TB Control Program investigated the increase in pediatric cases in 2003 and continues to monitor this. In 2003, 71% (5 of 7) of the pediatric cases were among African refugees who had been in the US for 4 months or less. Persons 15-64 years of age accounted for 62% to 82% of Utah's TB cases, with a five-year average of 75%. Persons 65 years of age and older accounted for 13% to 20% of Utah's TB cases, with a five-year average of 17%. The age distribution of TB cases in Utah is similar to that for the entire US in 2003 when 6% of the cases reported occurred in persons 0-14 years of age, 74% occurred in persons 15-64 years of age, and 20% occurred in persons 65 years of age and older (CDC. *Reported Tuberculosis in the United States, 2003*).

Race/Ethnicity

In 2004, 25% (9 of 36) of persons with TB in Utah were White, non-Hispanic. This is an increase from 2003 when 18% (7 of 39) of persons with TB were White, non-Hispanic. White, non-Hispanic persons accounted for 42% (13 of 31) of Utah's TB cases in 2002, 29% (10 of 35) in 2001, and 43% (21 of 49) in 2000.

In 2004, 14% (5 of 36) of persons with TB in Utah were Black, non-Hispanic. This is a decrease from 2003 when 20% (8 of 39) of persons with TB were Black, non-Hispanic. Black, non-Hispanic persons accounted for 3% (1 of 31) of Utah's TB cases in 2002, 11% (4 of 35) in 2001, and 10% (5 of 49) in 2000.

In 2004, 3% (1 of 36) of persons with TB in Utah were Native American/Alaskan Native. This is the same as in 2003 when 3% (1 of 39) of Utah's TB cases were Native Americans/Alaskan Natives. Native Americans/Alaskan Natives accounted for 10% (3 of 31) of Utah's TB cases in 2002, 6% (2 of 35) in 2001, and 0% (0 of 49) in 2000.

In 2004, 30% (11 of 36) of persons with TB in Utah were Asian/Pacific Islanders. This is an increase from 2003 when 26% (10 of 39) of persons with TB in Utah were Asian/Pacific Islanders. Asian/Pacific Islanders accounted for 19% (6 of 31) of Utah's TB cases in 2002, 17% (6 of 35) in 2001, and 16% (8 of 49) in 2000.

In 2004, 28% (10 of 36) of persons with TB in Utah were of Hispanic ethnicity. This is a decrease from 2003 when 33% (13 of 39) of persons with TB were of Hispanic ethnicity. Persons of Hispanic ethnicity accounted for 26% (8 of 31) of Utah's TB cases in 2002, 37% (13 of 35) of cases in 2001, and 31% (15 of 49) of cases in 2000.

Comment: White, non-Hispanic persons accounted for an average of 31% of Utah's TB morbidity for the five-

year period of 2000-2004 (range: 18% - 43%). Black, non-Hispanic persons accounted for an average of 12% of Utah's TB morbidity (range: 3% - 20%); Native Americans/Alaskan Natives accounted for an average of 4% of morbidity (range: 0% - 10%); Asian/Pacific Islanders accounted for an average of 22% of morbidity (range: 16% - 30%); and, persons of Hispanic ethnicity accounted for an average of 31% of morbidity (range: 26% - 37%). In 2004, 80% (4 of 5) of the cases of Black, non-Hispanic individuals were African refugees – two of whom had been in the US eight months or less. The racial/ethnic distribution of TB morbidity for the entire US in 2003 was as follows: 19% of cases occurred in White, non-Hispanic persons, 28% occurred in Black, non-Hispanic persons, 1% occurred in Native Americans/Alaskan Natives, 24% occurred in Asian/Pacific Islanders, and 28% occurred in persons of Hispanic ethnicity (CDC. *Reported Tuberculosis in the United States, 2003*).

Foreign-born Population

In 2004, 67% (24 of 36) of persons with TB in Utah were born outside of the US; 25% (9 of 36) of the cases were among refugees, 19% (7 of 36) were among immigrants, and 22% (8 of 36) were other foreign born persons. This is a decrease from 2003 when 72% (28 of 39) of persons with TB in Utah were born outside of the US. Persons born outside of the US accounted for 68% (21 of 31) of the TB cases in 2002, 63% (22 of 35) in 2001, and 55% (27 of 49) in 2000.

Comment: More than half of the persons diagnosed with TB in Utah were born outside of the US during the years 2000-2004, with a five-year average of 65%. In 2003, TB cases of foreign-born persons accounted for 53% of TB cases in the US; and Utah ranked number eight out of the 50 states for its percentage of TB cases that were of foreign-born persons (CDC. *Reported Tuberculosis in the United States, 2003*). These numbers show the importance of effectively screening and treating individuals from high TB prevalence areas.

Residence at Time of Diagnosis

In 2004, 86% (31 of 36) of persons with TB in Utah were living in a private residence at the time of their diagnosis. This is a decrease from 2003 when 97% (38 of 39) of persons with TB were living in a private residence at the time of their diagnosis. In 2002, 84% (26 of 31) of persons with TB were living in a private residence at the time of their diagnosis, 86% (30 of 35) in 2001, and 76% (37 of 49) of persons in 2000.

In 2004, 6% (2 of 36) of the persons with TB in Utah were homeless at the time of their diagnosis. This percentage is an increase from 2003 when 3% (1 of 39) of the persons with TB were homeless. Homeless persons accounted for 10% (3 of 31) of Utah's TB morbidity in 2002, 14% (5 of 35) in 2001, and 16% (8 of 49) in 2000.

In 2004, 8% (3 of 36) of the persons with TB in Utah were incarcerated in a correctional facility at the time of their diagnosis. There were no cases of TB diagnosed in a correctional facility in 2003, 2002, and 2001. Persons incarcerated in correctional facilities accounted for 4% (2 of 49) of Utah's TB morbidity in 2000.

In 2004, there were no persons with TB in Utah living in a long-term care facility at the time of their diagnosis. This is the same as in 2003 when none of the persons with TB in Utah were living in a long-term care facility at the time of their diagnosis. Persons living in long term care facilities accounted for 3% (1 of 31) of Utah's TB morbidity in 2002, 0% (0 of 35) in 2001, and 4% (2 of 49) in 2000.

No persons with TB in Utah for the years 2000-2004 were reported to be in a drug treatment center, juvenile detention center, or Job Corps facility at the time of their diagnosis with the exception of one case (1 of 35) in 2001 who was a client of a methadone treatment center.

Comment: Over the past five years, an average of 86% of persons with TB in Utah were living in a primary residence at the time of their diagnosis; 10% were homeless, 2% were in a correctional facility, and 1% were living in a long-term care facility at the time of their diagnosis.

Reported at Death

In 2004, 3% (1 of 36) of persons with TB in Utah had their disease initially reported at their death. This is a decrease from 2003 when 8% (3 of 39) persons with TB had their disease initially reported at their death. Persons with TB who had their disease initially reported at their death accounted for 0% (0 of 35) in 2002, 3% (1 of 35) in 2001, and 2% (1 of 49) in 2000.

Comment: From 2000-2004, an average of 3% of persons with TB in Utah had their disease initially reported at their death.

HIV Prevalence

In 2004, 6% (2 of 36) of cases of TB in Utah were co-infected with the human immunodeficiency virus (HIV). This is an increase from 2003 when 3% (1 of 39) of persons with TB were co-infected with HIV. In 2002, no persons with TB were co-infected with HIV. Six percent (2 of 35) of Utah's TB cases were co-infected with HIV in 2001, as were 6% (3 of 49) in 2000.

Comment: Persons with TB who were co-infected with HIV have accounted for 0% to 6% of Utah's TB morbidity each year from 2000-2004, with a five-year average of 4%. In 2003, 9% of persons with TB in the US were co-infected with HIV (CDC. *Reported Tuberculosis in the United States, 2003*).

Diagnostic Testing

Of the 36 cases of tuberculosis reported in Utah in 2004, 86% (31 of 36) were confirmed by laboratory culture; the remaining 14% (5 of 36) were verified by a physician's diagnosis. This is a change from 2003 when 74% (29 of 39) of TB cases were confirmed by laboratory culture and 26% (10 of 39) were verified by a physician's diagnosis. In 2002, 77% (24 of 31) of TB cases in Utah were confirmed by laboratory culture and 23% (7 of 31) were verified by a physician's diagnosis. In 2001, 77% (27 of 35) of TB cases were confirmed by laboratory culture and 23% (8 of 35) were verified by a physician's diagnosis. In 2000, 92% (45 of 49) of TB cases were confirmed by laboratory culture and 8% (4 of 49) were verified by a physician's diagnosis.

Comment: Between 2000 and 2004, an average of 81% of Utah's TB cases were confirmed by laboratory culture.

Drug Sensitivity Testing

Drug sensitivity testing was performed on the initial specimen isolates for 100% (31 of 31) of the positive cultures in 2004. Sensitivity testing was performed on 100% (29 of 29) of the isolates from 2003, 96% (23 of 24) of the isolates from 2002, 100% (27 of 27) of the isolates from 2001, and 96% (43 of 45) of the isolates from 2000.

In 2004, 23% (7 of 31) of persons with TB confirmed by laboratory culture in Utah had organisms that were resistant to one or more of the antituberculosis medications. Six of the organisms were resistant to one drug: three were resistant to isoniazid (INH), two to pyrazinamide (PZA), and one to ethambutol (EMB). One organism was resistant to three drugs: INH, streptomycin (SM), and ethionamide. The percentage of people with culture positive TB who had organisms resistant to one or more antituberculosis medications in 2004 has increased from 2003 when 10% (3 of 29) of persons with laboratory culture confirmed TB had organisms that were resistant to one or more medications. One of the organisms was resistant to SM; another organism was resistant to two drugs: SM and INH; and the third organism was resistant to three drugs: SM, INH, and rifampin (RIF). In 2002, 21% (5 of 24) of Utah's TB cases had organisms with resistance to at least one drug, 33% (9 of 27) of cases in 2001, and 27% (12 of 45) of cases in 2000. From 2000-2004, two persons with TB whose initial culture isolates had resistance to both INH and RIF were identified - one in 2000 and the other in 2003.

Comment: Over the five-year period 2000-2004, an average of 98% of the isolates of TB cases confirmed by laboratory culture were subjected to drug sensitivity testing. The percentage of culture isolates obtained from

TB cases that had resistance to one or more antituberculosis medications relative to the total number of laboratory culture confirmed TB cases has ranged from 10% to 33%, with a five-year average of 23%. This statistic highlights the need for continued drug sensitivity testing for all TB culture isolates, and the need for thorough follow-up of all TB patients to ensure that they take all their medicine as prescribed to treat their disease. Drug sensitivity results are unknown for TB cases that are clinically diagnosed.

Genotyping

Utah began participating in the Centers for Disease Control and Prevention (CDC) Universal TB Genotyping Program on January 1, 2004. The initial isolate from each new culture-positive Utah TB patient was sent to one of two genotyping laboratories contracted by the CDC. The laboratory performed polymerase chain reaction (PCR) tests and, when requested, the IS6110-based restriction fragment length polymorphism (RFLP) test on isolates that matched by PCR. These genotyping tests identify genetic links between *M. tuberculosis* isolates from different TB patients, thereby helping to identify patients who are involved in the same chain of transmission.

Utah had three instances of isolates with matching genotypes in 2004. In the first instance, no epidemiologic links were identified, and it was concluded that the match was a result of cross-contamination in the laboratory. The two isolates had been handled in the same lab on the same day, and one of these TB cases did not have clinical symptoms consistent with TB. By the time the genotyping results were reviewed, this individual was near completion of the medication regimen. The second match occurred within the homeless community and is currently under investigation. The third match occurred in two patients living in the same household.

Comment: The Utah TB Program looks forward to its continued participation in the genotyping program as it provides a previously unavailable tool to its TB control efforts. The Program will be able to detect and control outbreaks earlier, identify incorrect TB diagnoses based on false-positive culture results, and uncover unsuspected relationships between cases.

Directly Observed Therapy

In 2004, 100% (35 of 35) of persons with TB in Utah who were eligible to receive antituberculosis medications were provided directly observed therapy (DOT). This percentage is an increase from 2003 when 97% (35 of 36) of persons with TB who were eligible to receive antituberculosis medications were provided DOT. In 2002, 94% (29 of 31) of persons with TB were provided DOT, 97% (32 of 33) in 2001, and 96% (45 of 47) in 2000.

Comment: From 2000 to 2004, the number of persons treated for TB in Utah who were provided DOT has been above 90%, with a five-year average of 97%. In 2004, one patient was admitted to the Secure TB Unit at the University of Utah Hospital per quarantine order.

Health District Distribution

In 2004, 81% (29 of 36) of the persons with TB in Utah were residing in one of the four major metropolitan counties in the state (i.e., Salt Lake, Utah, Davis and Weber Counties). This is a decrease from 2003 when 85% (33 of 39) of persons with TB were living in one of the four metropolitan counties. In 2002, 81% (25 of 31) of the TB cases lived in one of these counties, 91% (32 of 35) in 2001, and 92% (45 of 49) in 2000. Utah's non-metropolitan counties (i.e., all counties except Salt Lake, Utah, Davis and Weber Counties) were home to 19% (7 of 36) of the persons with TB in Utah in 2004, 15% (6 of 39) in 2003, 19% (6 of 31) in 2002, 9% (3 of 35) in 2001, and 8% (4 of 49) in 2000.

Comment: The majority of Utah's TB morbidity occurs in its four major metropolitan counties, where 76% of the state's population resided in 2004 (according to population estimates from the Utah Department of Health's Indicator Based Information System). From 2000-2004, the average of Utah's TB morbidity in these four counties was 86% (range: 81% to 92%).

TB Suspects

In addition to the 36 reported cases of TB in Utah in 2004, there were 101 persons reported as suspect TB. In 2003, 85 individuals were reported with suspect TB in addition to the 39 cases; 103 were reported in 2002 in addition to the 31 cases; 138 were reported in 2001 in addition to the 35 cases; and, 105 were reported in 2000 in addition to the 49 cases.

In 2004, 26% (36 of 137) of all reported suspects became verified TB cases after diagnostic evaluation was complete. This is a decrease from 2003 when 31% (39 of 124) of all reported suspects became verified TB cases upon completion of the diagnostic evaluation. The percentages of all TB suspects that later became verified TB cases were: 23% (31 of 134) in 2002; 20% (35 of 173) in 2001; and 32% (49 of 154) in 2000.

Comment: From 2000 to 2004, the percentage of Utah's TB suspects that were later diagnosed with true TB disease has ranged from 20% to 32%, with an average of 26%. It is important for health care providers to consider TB as a possible diagnosis, even if an increase in suspect TB cases also means increased public health resources will be needed to evaluate suspect cases.

B1 / B2 Notifications

In 2004, six international refugees who moved to Utah were identified with Class B1 TB, and 17 were identified with Class B2 TB (23 total). This is an increase from 2003 when four persons were identified with Class B1 TB, and 12 were identified with Class B2 TB (16 total). (Last year, it was reported that two persons were identified with Class B1 TB and seven were identified with Class B2 TB; but additional persons were identified after the report was issued). A classification of B1 means that the person has clinically active, non-infectious TB, and a B2 classification means the person has an abnormal x-ray but does not have clinically active TB. In 2002, there was one person identified with Class B1 TB and six with Class B2 TB (7 total); in 2001, there were 5 persons identified with Class B1 TB and 36 with Class B2 TB (41 total); and, in 2000, there were 4 individuals identified with Class B1 TB and 14 identified with Class B2 TB (18 total). All individuals identified with Class B1 or Class B2 TB were referred to the local health department within whose jurisdiction they would have been residing for further evaluation.

In 2004, 17 immigrants who moved to Utah were identified with Class B1 TB, and eight were identified with Class B2 TB (25 total). This is a slight increase from 2003 when 13 persons were identified with Class B1 TB, and ten were identified with Class B2 TB (23 total). In 2002, there were 14 persons identified with Class B1 TB and eight with Class B2 TB (22 total); in 2001, there were 17 persons identified with Class B1 TB and 16 with Class B2 TB (33 total); and, in 2000, there were 20 individuals identified with Class B1 TB and 6 identified with Class B2 TB (26 total).

Comment: From 2000-2004, 20 international refugees moving to Utah were identified with Class B1 TB and 85 were identified with Class B2 TB, for a combined total of 105 persons. The increased number of refugee arrivals with Class B1 or B2 TB in 2004 reflects the increase in the number of total refugee arrivals to Utah to near pre-9/11/01 levels. Refugees are entitled to a comprehensive health examination through the UDOH Refugee Health Program within 30 days of their arrival in the US, including an evaluation for active TB disease. As a result of this evaluation, two Class B refugees were identified with active TB disease between 2000 and 2004. It is interesting to note that in 2004, a total of four refugees were diagnosed with active TB within eight months of arrival to Utah. This statistic highlights the importance of ensuring that newly-arriving refugees complete their health screenings in a timely manner.

From 2000-2004, 81 immigrants moving to Utah were identified with Class B1 TB and 48 were identified with Class B2 TB, for a combined total of 129 persons. The number of Class B1 immigrants has been at least two times higher than the number of Class B1 refugees, and the UDOH TB Control and Refugee Health Program has instituted a program to ensure that Class B1 and B2 immigrants as well as refugees are evaluated within 45

days of notification of their arrival to the US.

Average Cost of Antituberculosis Medications for Persons with TB

An estimated total of \$20,258.00 was spent by the Tuberculosis Program for antituberculosis medications for the 2004 active TB cases and suspects residing in Utah. This is a decrease from 2003, when an estimated total of \$23,505.00 was spent by the Program for antituberculosis medications. These figures do not include money spent on testing and treatment for persons with latent TB infections. A typical patient with active TB that was susceptible to all first-line antituberculosis medications required six months of directly observed therapy for a total pharmacy cost of \$411.04.

Comment: Starting in 2003, the Program has encouraged clients to have antituberculosis medications covered by their health insurance whenever possible. In 2004, three clients who were on more expensive medication regimens had their medications covered by their health insurance. In 2003, one client who was on a more expensive medication regimen was able to do this. It should be noted that the cost of medication is only part of the total cost of treating active TB. Other costs not considered here include nursing time spent providing DOT, the cost of clinical evaluations (including laboratory tests), and administrative costs.

TB in Utah Compared to Other States

According to *Reported Tuberculosis in the United States, 2003* (CDC, September 2004), Utah was ranked 40th out of the 50 states for its tuberculosis case rate. Utah's case rate in 2003 was 1.7 cases per 100,000 persons as compared to the national case rate of 5.1 cases per 100,000 persons.

In 2003, Utah ranked lower than the national average for persons with TB who were homeless within the 12 months prior to diagnosis; the percentage of persons with TB in Utah who were homeless within the year prior to diagnosis was 3% as compared to 6% for the entire US. In 2004, the percentage of persons with TB in Utah who were homeless within the past year prior to diagnosis increased to 14%.

In 2003, Utah was one of 17 states reporting no TB cases with a history of injecting drug use within the past 12 months; nationally, 2% of the TB cases were among persons reporting injecting drug use within the past 12 months. In 2004, there were again no persons with TB in Utah reporting injecting drug use within the past 12 months.

In 2003, Utah was one of eight states reporting no TB cases with a history of non-injecting drug use within the past 12 months; nationally, 7% of the TB cases were among persons reporting non-injecting drug use within the past 12 months. In 2004, 6% of persons with TB in Utah reported non-injecting drug use.

In 2003, Utah ranked lower than the national average for the percentage of TB cases that reported excess alcohol use within the past 12 months: 10% of persons with TB in Utah as compared with 15% for the entire US. In 2004, the percentage of persons with TB in Utah who reported excess alcohol use increased to 19%.

In 2003, Utah ranked eighth out of the 50 states for the percentage of TB cases in foreign-born persons. Utah's percentage of TB cases in foreign-born persons was 72% in 2003 as compared to the national average of 53%.

In 2004, the percentage of Utah's TB cases that were in foreign-born persons decreased to 67%.